

IFW16

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/778,516B

DATE: 09/29/2004 TIME: 11:34:28

Input Set : A:\12875-002001.txt

Output Set: N:\CRF4\09292004\1778516B.raw

```
4 <110> APPLICANT: Lo, Wei-Yu
  5
                Lo, Ming Ching
                Liau, Pei-Ru
  8 <120> TITLE OF INVENTION: LAC SHUTTLE VECTORS
11 <130> FILE REFERENCE: 12875-002001
13 <140> CURRENT APPLICATION NUMBER: 09/778,516B
                                                                                                TO THE WALLET HE
14 <141> CURRENT FILING DATE: 2001-02-07
16 <150> PRIOR APPLICATION NUMBER: TW 89110235
17 <151> PRIOR FILING DATE: 2000-05-26
19 <160> NUMBER OF SEQ ID NOS: 8
21 <170> SOFTWARE: FastSEO for Windows Version 4.0
23 <210> SEQ ID NO: 1
                                                                                                   THE RESERVE OF THE PROPERTY OF
24 <211> LENGTH: 8115
                                                                                                     The first the second second
25 <212> TYPE: DNA
26 <213> ORGANISM: Lactobacillus plantarum
28 <400> SEQUENCE: 1
29 gatgtacggg ccagatatac gcgttgacat tgattattga ctagttatta atagtaatca
                                                                                                                                         60
30 attacggggt cattagttca tagcccatat atggagttcc gcgttacata acttacggta
                                                                                                                                       120
31 aatggcccgc ctggctgacc gcccaacgac ccccgcccat tgacgtcaat aatgacgtat
                                                                                                                                       180
32 gttcccatag taacgccaat agggactttc cattgacgtc aatgggtgga ctatttacgg
                                                                                                                                       240
33 taaactgccc acttggcagt acatcaagtg tatcatatgc caagtacgcc ccctattgac
                                                                                                                                       300
34 gtcaatgacg gtaaatggcc cgcctggcat tatgcccagt acatgacctt atgggacttt
                                                                                                                                       360
35 cctacttggc agtacatcta cgtattagtc atcgctatta ccatggtgat gcggttttgg
                                                                                                                                       420
36 cagtacatca atgggegtgg atageggttt gactcaeggg gatttecaag tetecaecee
                                                                                                                                       480
37 attgacgtca atgggagttt gttttggcac caaaatcaac gggactttcc aaaatgtcgt
                                                                                                                                       540
38 aacaactccg ccccattgac gcaaatgggc ggtaggcgtg tacggtggga ggtctatata
                                                                                                                                       600
39 agcagagete tetggetaae tagagaaeee aetgettaet ggettatega aattaataeg
                                                                                                                                       660
40 acteactata gggagaecea agettggtae egagetegga tecaetagta aeggeegeea
                                                                                                                                       720
41 gtgtgctgga attctgcaga tatccatcac actggcggcc gctcgagcat gcatctagag
                                                                                                                                       780
42 ggccctattc tatagtgtca cctaaatgct agagctcgct gatcagcctc gactgtgcct
                                                                                                                                       840
43 tetagttgee agecatetgt tgtttgeece teeceegtge etteettgae eetggaaggt
                                                                                                                                       900
44 gccactccca ctgtcctttc ctaataaaat gaggaaattg catcgcattg tctgagtagg
                                                                                                                                       960
45 tgtcattcta ttctgggggg tggggtgggg caggacagca agggggagga ttqqqaaqac
                                                                                                                                     1020
46 aatagcaggc atgctgggga tgcggtgggc tctatggctt ctgaggcgga aagaaccagc
                                                                                                                                     1080
47 tgcattaatg aatcggccaa cgcgcgggga gaggcggttt gcgtattggg cgctcttccg
                                                                                                                                     1140
48 ettecteget cactgacteg etgegetegg tegttegget geggegageg gtateagete
                                                                                                                                     1200
49 actcaaaggc ggtaatacgg ttatccacag aatcagggga taacgcagga aagaacatgt
                                                                                                                                     1260
50 gagcaaaagg ccagcaaaag gccaggaacc gtaaaaaaggc cgcgttgctg gcgtttttcc
                                                                                                                                     1320
51 ataggeteeg eeeceetgae gageateaea aaaategaeg eteaagteag aggtggegaa
                                                                                                                                     1380
52 accegacagg actataaaga taccaggegt tteeeeetgg aageteeete gtgegetete
                                                                                                                                     1440
53 ctgtteegae cetgeegett aeeggataee tgteegeett teteeetteg ggaagegtgg
                                                                                                                                     1500
54 cgctttctca atgctcacgc tgtaggtatc tcaqttcggt gtaggtcgtt cgctccaagc
                                                                                                                                     1560
```

55 tgggctgtgt gcacgaaccc cccgttcagc ccgaccgctg cgccttatcc ggtaactatc

1620

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/778,516B

DATE: 09/29/2004 TIME: 11:34:28

Input Set :  $A:\12875-002001.txt$ 

Output Set: N:\CRF4\09292004\1778516B.raw

56	gtcttgagtc	caacccggta	agacacgact	tatcgccact	ggcagcagcc	actggtaaca	1680
					cttgaagtgg		1740
					gctgaagcca		1800
					cgctggtagc		1860
					tcaagaagat		1920
					ttaagggatt		1980
					aggggttccg		2040
					tatcctgaca		2100
					caacttcttc		2160
					aatcaccatt		2220
					catagctgat		2280
					tacgctcatc		2340
					cggcactagc		2400
					gcaccacagg		2460
					gtgctaaata		2520
					agtgttgatt		2580
					ccaataaatt		2640
					ctcttaaaga		2700
					acaaaaaccg		2760
					tcgagttttt		2820
					acgtttgata		2880
					cccgtacatc		2940
					tttcaatctt		3000
					tttctgacat		3060
					taagcttata		3120
					gataatcaac		3180
					tgtctttctt		3240
					gatacaagcc		3300
					tatcaagata		3360
					aaaaaccgct		3420
					agctggaccg		3420
					cgtcaggctt		
					atcgcctgta		3540 3600
				·			
					agctaactgt		3660
					aaaataaaaa tgacgcaagt		3720
					cacaacacaa		3780
							3840
					aatgcgcact		3900
					atgataatgt		3960
					tgcgcactac		4020
					catgataatg		4080
					gtcagcaagc		4140
					ccctatggtc		4200
					tecetgettg		4260
						gaccgacaat	4320
						gcaaactaag	4380
						gttaaattag	4440
						tctccgggca	4500
104	attaatgaac	ttggacatgg	ttgacgaccc	ggtctttgca	agccgaattc	gaccacactg	4560

## RAW SEQUENCE LISTING

DATE: 09/29/2004 PATENT APPLICATION: US/09/778,516B

TIME: 11:34:28

Input Set : A:\12875-002001.txt

Output Set: N:\CRF4\09292004\1778516B.raw

105	gcggccgtta	ctagggtatc	gatccgataa	aaagttaggc	gacggctttg	ccctggtgcc	4620
106	agcagacggt	aaggtctacg	cgccatttgc	cggtactgtc	cgccagctgg	ccaagacccg	4680
107	gcactcgatc	gtcctggaaa	atgaacatgg	ggtcttggtc	ttgattcacc	ttggcctggg	4740
108	cacggtcaaa	ttaaacggga	ctggctttgt	cagctatgtt	gaagaggca	gccaggtaga	4800
109	agccggccag	cagatcctgg	aattctggga	cccggcgatc	aagcaggcca	agctggacga	4860
110	cacggtaatc	gtgaccgtca	tcaacagcga	aactttcaca	aatagccaga	tgctcttgcc	4920
111	gatcggccac	agcgtccaag	ccctggatga	tgtattcaag	ttagaaggga	agaattagaa	4980
		aagttagtaa					5040
		gtttacgaag					5100
		gaactggagg					5160
		tacgctgaaa					5220
116	cgatagcaat	tttaagtcag	tcaaagtacc	cggcaacctg	gaactgcaag	gctttggcca	5280
117	gccccagtat	gtcaacgtcc	aatatccatg	ggacggcagt	gaggagattt	tcccgcccca	5340
118	aattccaagc	aaaaatccgc	tcgcttctta	tgtcagatac	tttgacctgg	atgaagcttt	5400
		gaagtcagct					5460
		ttcgtcggct					5520
121	caagttcctc	aagaaagaaa	ataaccgcct	ggcagtggct	ctctacaagt	attcttccgc	5580
122	ctcctggctg	gaagaccagg	acttctggcg	catgtctggt	ttgttcagat	cagtgactct	5640
123	tcaggccaag	ccgcgtctgc	acttggagga	ccttaagctt	acggccagct	tgaccgataa	5700
124	ctaccaaaaa	ggaaagctgg	aagtcgaagc	caatattgcc	taccgcttgc	caaatgccag	5760
125	ctttaagctg	gaagtgcggg	atagtgaagg	tgacttggtt	gctgaaaagc	tgggcccaat	5820
126	cagaagcgag	cagctggaat	tcactctggc	tgatttgcca	gtagctgcct	ggagcgcgga	5880
127	aaagcctaac	ctttaccagg	tccgcctgta	tttataccag	gcaggcagcc	tcttagaggt	5940
128	tagccggcag	gaagtgggtt	tccgcaactt	tgaactaaaa	gacgggatta	tgtaccttaa	6000
129	cggccagcgg	atcgtcttca	agggggccaa	ccggcacgaa	tttgacagta	agttgggtcg	6060
130	ggctatcacg	gaagaggata	tgatctggga	catcaagacc	atgaagcgaa	gcaacatcaa	6120
131	tgctgtccgc	tgctctcact	acccgaacca	gtccctcttt	taccggctct	gtgacaagta	6180
132	cggcctttac	gtcattgatg	aagctaacct	ggaaagccac	ggcacctggg	aaaaagtggg	6240
133	ggggcacgaa	gatcctagct	tcaatgttcc	aggcgatgac	cagcattggc	tgggagccag	6300
		gtgaagaaca					6360
		aatgagtctt					6420
		ccgacccggg					6480
		cagattgaaa					6540
		ccagccaagc					6600
		ctggccgcct					6660
		tggattgacc					6720
		cggccaaccg					6780
		ccgaaactgg					6840
		cagctcttcc					6900
144	cttcttgact	agtcttttgg	tcgatggcaa	gttgacctac	cagagccggc	ctctgacctt	6960
		cctggcgaat					7020
146	aaaaggggag	gtcgtctacc	gggtaacggc	ccacttaaaa	gaagacttgc	cttgggcgga	7080
147	tgagggcttc	actgtggctg	aagcagaaga	agtagctcaa	aagctgccgg	aatttaagcc	7140
		ccagatttag					7200
		ttctccaagg					7260
		cggctgccgg					7320
		ggctatgatc					7380
		tgcgaggtca					7440
153	tgtcgcctta	aagggtgatt	taaccgtgac	ctatgaagtc	gatggacggg	gcaagattgc	7500

DATE: 09/29/2004

TIME: 11:34:28

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/778,516B

Input Set : A:\12875-002001.txt

Output Set: N:\CRF4\09292004\I778516B.raw

154	tgtaacagct	gacttcccag	gcgcggaaga	agctggtctc	ttgccagcct	ttggcttgaa	7560
155	cctggccctg	ccaaaagaac	tgaccgatta	ccgctactat	ggtctgggac	ctaatgagag	7620
156	ctacccagac	cgcttggaag	gtaattacct	gggcatctac	cagggagcgg	taaaaaagaa	7680
		tatcgtccgc					7740
158	ctttgatgaa	aagggcggct	tggaatttac	ggccaatggg	gcagacttga	acttgtctgc	7800
		tctgccgccc					7860
		gttagagcct					7920
		cacccggaat					7980
162	gattcagccc	cttttactaa	aataaatgct	acaattgact	taacaggatg	aaattttagt'	8040
		cgagtgagga	agatggcaac	gatcagagaa	gtgccaaggc	agccggcgtg	8100
164	tcgctagcga	cggtc					8115
	<210> SEQ		4				
	<211> LENG				¢		
	<212> TYPE					•	•
169	<213> ORGA	NISM: Lacto	oacillus pla	antarum			
	<400> SEQU					٠.	
		ccagatatac					60
		cattagttca					120
174	aatggcccgc	ctggctgacc	gcccaacgac	ccccgcccat	tgacgtcaat	aatgacgtat	180
		taacgccaat					240
176	taaactgccc	acttggcagt	acatcaagtg	tatcatatgc	caagtacgcc	ccctattgac	300
		gtaaatggcc					360
		agtacatcta					420
179	cagtacatca	atgggcgtgg	atagcggttt	gactcacggg	gatttccaag	tctccacccc	480
		atgggagttt					540
		ccccattgac					600
		tctggctaac					660
183	actcactata	gggagaccca	agcttggtac	cgagctcgga	tccactagta	acggccgcca	720
		attctgcaga					780
		tatagtgtca					840
		agccatctgt					900
		ctgtcctttc					960
188	tgtcattcta	ttctgggggg	tggggtgggg	caggacagca	agggggagga	ttgggaagac	1020
189	aatagcaggc	atgctgggga	tgcggtgggc	tctatggctt	ctgaggcgga	aagaaccagc	1080
190	tgcattaatg	aatcggccaa	cgcgcgggga	gaggcggttt	gcgtattggg	cgctcttccg	1140
191	cttcctcgct	cactgactcg	ctgcgctcgg	tcgttcggct	gcggcgagcg	gtatcagctc	1200
		ggtaatacgg					1260
		ccagcaaaag					1320
		ccccctgac					1380
195	acccgacagg	actataaaga	taccaggcgt	ttccccctgg	aagctccctc	gtgcgctctc	1440
		cctgccgctt					1500
		atgctcacgc					1560
		gcacgaaccc					1620
		caacccggta					1680
		agcgaggtat					1740
		tagaaggaca					1800
		tggtagctct					1860
						cctttgatct	
204	tttctacggg	gtctgacgct	cagtggaacg	aaaactcacg	ttaagggatt	ttggtcatga	1980

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/778,516B

TIME: 11:34:28

DATE: 09/29/2004

Input Set : A:\12875-002001.txt

Output Set: N:\CRF4\09292004\1778516B.raw

205	gcggatacat	atttgaatgt	atttagaaaa	ataaacaaat	aggggttccg	cgcacatttc	2040
206	cccgaaaagt	gccacctgac	gtcgacggat	cgggagatca	tatcctgaca	ttctctttac	2100
207	caaataaaat	aattttgttt	attaaaatcc	cattttgcga	caacttcttc	cgcagcttcc	2160
208	atttgctctt	tggtgtaatc	ttcatcgcca	acatgaacta	aatcaccatt	ctcaacatct	2220
209	tcaagtttca	aatcttgctt	aatttgcttt	aataatccac	catagctgat	ttgtcgtgtt	2280
					tacgctcatc		2340
					cggcactagc		2400
212	tcagttcctt	tacgtttgtt	agctttaaca	gcctgcacat	gcaccacagg	ctcataatca	2460
					gtgctaaata		2520
					agtgttgatt		2580
					ccaataaatt		2640
					ctcttaaaga		2700
					acaaaaaccg		2760
218	tctcttgcaa	ctgcttccgc	aataatttgt	tttaactggc	tcgagttttt	catgeteett	2820
					acgtttgata		2880
					cccgtacatc		2940
					tttcaatctt		3000
					tttctgacat		3060
					taagcttata		3120
					gataatcaac		3180
					tgtctttctt		3240
					gatacaagcc		3300
					tatcaagata		3360
228	gccaaaaatt	gcgtttttaa	accccaaaaa	gcagatcagc	aaaaaccgct	gaactgcttt	3420
					agctggaccg		3480
					cgtcaggctt		3540
					atcgcctgta		3600
					agctaactgt		3660
					aaaataaaaa		3720
					tgacgcaagt		3780
					cacaacacaa		3840
236	tgtgtaagtg	cgcactacat	gataatgcgc	actacatgat	aatgcgcact	acatgataat	3900
237	gtgcgcacta	catgataatg	cgcactacat	gataatgtac	atgataatgt	gcgcactaca	3960
					tgcgcactac		4020
					catgataatg		4080
					gtcagcaagc		4140
241	aaagggatat	gccaacggat	ttaccgttga	tctcccgatc	ccctatggtc	gactctcagt	4200
242	acaatctgct	ctgatgccgc	atagttaagc	cagtatctgc	tccctgcttg	tgtgttggag	4260
243	gtcgctgagt	agtgcgcgag	caaaatttaa	gctacaacaa	ggcaaggctt	gaccgacaat	4320
244	tgcatgaaga	atctgcttag	ggttaggcgt	tttgcgctgc	ttcgttagaa	gcaaactaag	4380
245	agtgtgttga	gtagtgcagt	atcttaaaat	tttgtataat	aggaattgaa	gttaaattag	4440
					tggcagccag		4500
247	attaatgaac	ttggacatgg	ttgacgaccc	ggtctttgca	agccgaattc	gaccacactg	4560
248	gcggccgtta	ctagggtatc	gatccgataa	aaagttaggc	gacggctttg	ccctggtgcc	4620
249	agcagacggt	aaggtctacg	cgccatttgc	cggtactgtc	cgccagctgg	ccaagacccg	4680
250	gcactcgatc	gtcctggaaa	atgaacatgg	ggtcttggtc	ttgattcacc	ttggcctggg	4740
					gaagagggca		4800
252	agccggccag	cagatcctgg	aattctggga	cccggcgatc	aagcaggcca	agctggacga	4860
253	cacggtaatc	gtgaccgtca	tcaacagcga	aactttcaca	aatagccaga	tgctcttgcc	4920

VERIFICATION SUMMARY

DATE: 09/29/2004

PATENT APPLICATION: US/09/778,516B

TIME: 11:34:29

Input Set : A:\12875-002001.txt
Output Set: N:\CRF4\09292004\I778516B.raw